



UNITED STATES PATENT AND TRADEMARK OFFICE

EOL

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/650,062	08/27/2003	Yasuaki Natori	03518/LH	7351
1933	7590	07/01/2005	EXAMINER	
FRISHAUF, HOLTZ, GOODMAN & CHICK, PC			POLYZOS, FAYE S	
220 5TH AVE FL 16			ART UNIT	
NEW YORK, NY 10001-7708			PAPER NUMBER	
			2878	

DATE MAILED: 07/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/650,062

Applicant(s)

NATORI, YASUAKI

Examiner

Faye Polyzos

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-19 is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☒ Claim(s) 4 and 5 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/27/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Kashima et al* (US 6,094,300 A) and further in view of *Wolleschensky et al* (US 2004/0031930 A1).

Regarding claim 1, *Kashima* discloses a laser scanning microscope comprising: a first optical scanning system (1) which scans a first laser having a spectrum in a visible range on a sample (110) to excite fluorescence; a first dichroic mirror (101) which separates the fluorescence from the sample from an optical path of the first laser light (See Generally Fig. 1 and col. 7, lines 4-20); a photodetector which detects the fluorescence separated by the first dichroic mirror; an emission filter (112) which is disposed between the first dichroic mirror and photodetector to cut off the first laser light and to transmit desired fluorescence (col. 8, lines 45-50); a second optical scanning system (3) which introduces a second laser light having the spectrum in an ultraviolet or infrared region into a specific portion of the sample (col. 7, lines 21-27 and col. 9, lines 38-58). *Kashima* does not disclose of a laser cut filter disposed between the first dichroic mirror and the photodetector. *Wolleschensky* discloses a laser cut filter disposed between the first dichroic mirror and the photodetector to limit transmission of

Art Unit: 2878

the second laser light (See Generally Fig. 2 and paragraphs [0010]-[0013]).

Wolleschensky teaches illumination distribution can be manipulated at the site of specimen interaction to make it possible to scan so-called regions of interest (ROI) in real time and in addition, illumination methods known from wide field microscopy such as oblique illumination can be realized. Therefore, it would have been obvious to modify the apparatus suggested by *Kashima* to dispose a second dichroic mirror and a cut filter as discloses supra, by *Wolleschensky*, to allow for a more versatile apparatus.

3. Claims 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kashima et al* (US 6,094,300 A) and *Wolleschensky et al* (US 2004/0031930 A1) as applied to claim 1 above, and further in view of *Dong et al* (US 2003/0222222 A1).

Regarding claim 2, *Kashima* discloses of a plurality of photodetectors (115)(17) and emission filters (112)(14) (See Generally Fig. 6). *Kashima* does not disclose of a second dichroic mirror, which splits the fluorescence from the sample toward the photodetectors or of a cut filter disposed between the first dichroic mirror and the photodetector. *Dong* discloses a second dichroic mirror, which splits the fluorescence from the sample toward these photodetectors (70) ([0022]). *Dong* teaches fluorescence is separated by a dichroic mirror into the different detection channels. The passes fluorescence can be filtered individually by using multiple filters (60), following detecting the fluorescence by the respective detection channels (70) and in a preferred embodiment, four sets of filters and detection channels are applied to detect the fluorescence, and the filters can also be chosen from prisms or grating ([0022]). *Wolleschensky* discloses a laser cut filter disposed between the first dichroic mirror and

Art Unit: 2878

the photodetector to limit transmission of the second laser light (See Generally Fig. 2 and paragraphs [0010]-[0013]). *Wolleschensky* teaches illumination distribution can be manipulated at the site of specimen interaction to make it possible to scan so-called regions of interest (ROI) in real time and in addition, illumination methods known from wide field microscopy such as oblique illumination can be realized. Therefore, it would have been obvious to modify the apparatus suggested by *Kashima* to dispose a second dichroic mirror and a cut filter as discloses supra, by *Dong* and *Wolleschensky*, to allow for a more versatile apparatus.

Regarding claim 3, *Wolleschensky* discloses a wavelength change section which changes a wavelength of the second laser light; and a filter change section which changes the laser cut filter in accordance with the wavelength of the second laser light (See Generally Fig. 2 and paragraph [0011]).

Allowable Subject Matter

4. Claims 4-5 are objected to as being dependent upon a rejected based claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

Regarding dependent claim 4, the prior art, as stated supra, does not disclose or fairly suggest a laser scanning microscope capable of attaching and detaching the second optical scanning system to a main body of the laser scanning microscope.

Regarding dependent claim 5, the prior art, as stated supra, does not disclose or fairly suggest a laser scanning microscope wherein the transmittance of the first laser light of the emission filter is 0.01% or less.

6. Claims 6-19 are allowed.

7. The following is an examiner's statement of reasons for allowance:

Regarding independent claim 6, the prior art does not disclose or fairly suggest a laser scanning microscope comprising a wavelength selection device disposed between the first light branch device and the photodetector to transmit a desired observation light and to limit transmission of the second laser light.

The examiner notes that while it is known in the art for a laser scanning microscope capable of selecting wavelength composition of light admitted to the detector. Suitable emission spectral filters may include: interference filters, liquid crystal tunable filters, acousto-optic tunable filters, gratings, monochromators, and/or prisms, among others. One or more filters having suitable spectral characteristics (e.g., cutoff wavelength) may be housed in a filter selector such as a filter wheel or filter slider so that the wavelength composition of the emission light admitted to the detector may be changed by rotating or sliding or otherwise placing a preselected filter into the optical path (see for example Jackson III et al – US 2002/0109100 A1 – [0051]), the prior art does not fairly suggest the apparatus comprising a wavelength selection device disposed between the first light branch device and the photodetector to transmit a desired observation light and to limit transmission of the second laser light.

The remaining claims 7-19 are allowable based on their dependency.

Art Unit: 2878

8. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faye Polyzos whose telephone number is 571-272-2447. The examiner can normally be reached on Monday thru Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Porta can be reached on 571-272-2444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


DAVID PORTA
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800